

34. A NOTE ON DISTRIBUTIONAL RECORD OF *SPERGULARIA DIANDRA* (GUSS.) HELDR. & SART FROM PIN VALLEY NATIONAL PARK IN INDIA<sup>1</sup>K. CHANDRA SEKAR<sup>2,3</sup> AND S.K. SRIVASTAVA<sup>2,4</sup><sup>1</sup>Accepted April 07, 2005<sup>2</sup>Botanical Survey of India, Northern Circle, 192 Kaulagarh Road, Dehradun 248 195, Uttarakhand, India.<sup>3</sup>Email: kcesekar1312@rediffmail.com<sup>4</sup>Email: skshri08@rediffmail.com

Pin Valley National Park (PVNP) is situated between 31° 61' 40" to 32° 21' 20" N and 77° 4' 21" to 78° 6' 19" E. The Park is located in the cold desert area of Spiti sub-division in Lahaul-Spiti district, Himachal Pradesh. During a recent survey, July 15, 2002, and exploration of plant resources of this Park, few interesting specimens of *Spergularia* (Pers.) J. & C. Presl growing along with *Caragana versicolor* Benth., on rocky slopes, at an altitude of c. 4,100 m have been collected. Detailed study of literature and critical examination of the specimens reveals that they belong to *Spergularia diandra* (Guss.) Heldr. & Sart, hitherto known from Farrukhabad district in Uttar Pradesh, and other parts of Asia and Europe. It is now being reported from PVNP, Himachal Pradesh, for the first time. An expert opinion has also been sought regarding its identity from Dr. Shahina Ghazanfar, who has worked on Caryophyllaceae in Pakistan.

The genus *Spergularia* (Pers.) J. & C. Presl comprises of 25 species, which are cosmopolitan in distribution (Mabberley 1998). Majumdar (1993) reported only one species *Spergularia rubra* (L.) J. & C. Presl growing as a weed in plains and hilly regions of Haryana, Jammu & Kashmir and Uttarakhand. Naithani and Dayal (1981) reported *Spergularia diandra* (Guss.) Heldr. & Sart from Farrukhabad district of Uttar Pradesh in the Gangetic plain in 1968. The same species was not included in 'Flora of India' (Caryophyllaceae) by Majumdar (1993).

Hence, the report of *Spergularia diandra* (Guss.) Heldr. & Sart from Pin Valley National Park, Lahaul-Spiti in Himachal Pradesh shows an extended distribution of the taxon from the Gangetic plains to alpine Himalaya, and constitutes an addition to the flora of Himachal Pradesh. Besides, the species has also been collected after a lapse of more than three decades.

The taxonomic citation, brief description, phenology, ecology, distribution, specimens examined and illustration have been provided to facilitate an easy identification of the species in the field.

*Spergularia diandra* (Guss.) Heldr. & Sart in Herb. Grace. Norm. 492: 1124, 1855; Naithani & Dayal in *Indian J. Forestry* 4(3): 242, 1981; Ghazanfar & Nasir in Nasir & Ali, Fl. W. Pakistan 175: 51, 1986. *Arenaria diandra* Guss., Prod. Soc. 1: 515, 1827. Fig. 1.

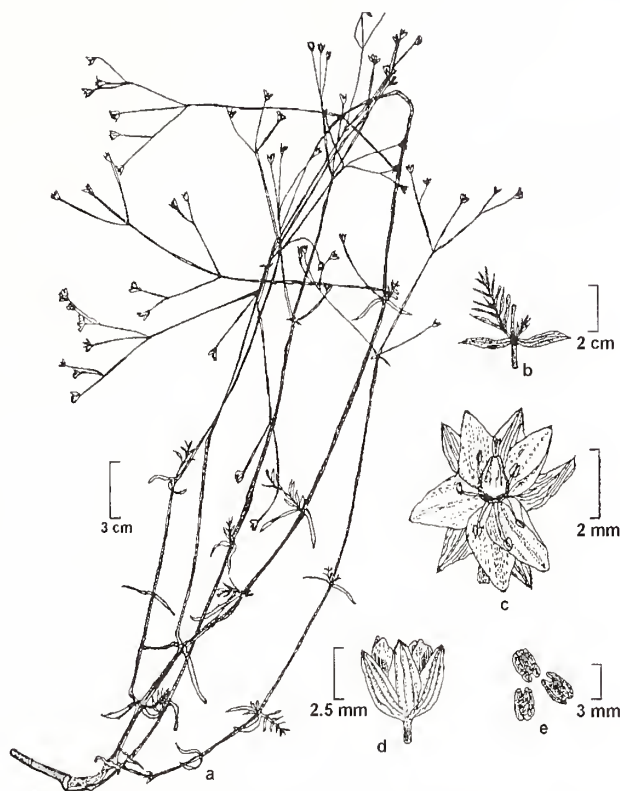


Fig. 1: *Spergularia diandra* (Guss.) Heldr. & Sart: a. Habit, b. Node, c. Flower, d. Capsule enclosed in calyx, e. seeds

Perennial herbs, woody at base. Stems decumbent, often ascending, up to 70 cm high, glabrous. Leaves opposite, 2.1-3 x 0.9-1.3 cm, fascicled, mostly on one side of node; leaflets sessile, linear-narrowly lanceolate, 1.1-1.3 x 0.1-0.2 cm, acute, glabrous fleshy. Stipules prominent, linear-narrowly lanceolate, 1.4-2.6 x 0.2-0.35 cm, base united around the node, acute, glabrous. Flowers in cymes 15-21 cm long; bracts linear, 0.8-1.1 x 0.1-0.2 cm, acute. Sepals 5, free, ovate-lanceolate, 3-4 mm long, glabrous. Petals 5, ovate, equal or slightly shorter than sepals, entire, white. Stamens 5-8. Styles 3. Capsules ovoid, as long as sepals, 3-valved. Seeds 2-4, 2.5-3 x 2-2.5 mm, tuberculate, unwinged, brown.

**Fl. & Fr.:** July-September.

**Distribution:** INDIA: Himachal Pradesh (Lahaul-Spiti), Uttar Pradesh; China; Kazakhstan; Pakistan; USSR; Europe; Iran and Iraq.

**Ecology:** Rare. Growing along with *Caragana versicolor* Benth. at an altitude of c. 4,100 m.

**Specimens examined:** Uttar Pradesh, Farrukhabad, Mahmoodpur Sinauda (Tilia Garho), March 04, 1968, Ram Dayal 1968 T (DD); Himachal Pradesh, Lahaul-Spiti, Pin Valley National Park, Gechang-Thango, c. 4,100 m, July 15, 2002, K. Chandra Sekar 100450 (BSD, K).

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 NAITHANI, H.B. & R. DAYAL (1981): Occurrence of *Spergularia diandra* in India. *Indian J. For.* 4(3): 242.

### 35. A NOTE ON THE IDENTITY AND RANGE EXTENSION OF *RICCIA GROLLEI* UDAR<sup>1</sup>

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During the survey of bryophytes in and around the National Thermal Power Corporation, Unchahar in the Raebareli district of Uttar Pradesh, we collected and identified a species *Riccia grollei* Udar, which was the only liverwort growing in the pollution stressed environment of Unchahar. The species has extended its distribution from southern India, central India and Rajasthan to the Gangetic Plains of northern India (Parihar *et al.* 1994). It was first reported by Pande and Udar (1958) from southern India, and was named *Riccia tuberculata* Pande *et* Udar, but was later found to be a homonym of *Riccia tuberculata* Lamarck *et* Poiret. Hence, Udar (1965) adopted a new name, i.e. *Riccia grollei* Udar.

The diagnostic feature of the species is the presence of tuberculate thickening on a few cells of photosynthetic filaments. The tendency to synthesize food is thought to be great in this species, as the chloroplasts are not confined to the photosynthetic zone, but can also be seen in the cells of the storage zone. In the specimens collected from the vicinity of the NTPC, Unchahar, Raebareli, the spores do not possess the tri-radiate mark and wing, which were present on the specimens reported by Udar from southern India. A brief note on the identity and occurrence of this species is given below:

*Riccia grollei* Udar *Curr. Sci.* 34: 126 (1965)

Plants 0.2-0.5 cm long, 0.2-0.3 cm wide, green, mono or bifurcate overlapping, apex rounded, fingerprint-like

impression on the dorsal surface of thallus; rhizoids brown, both type simple and tuberculate in ratio 9-12: 6-10 in each transverse section of thallus; scales feebly developed, light brown; photosynthetic filament 220 µm long, 5-8 cells in one filament, hyaline cell 39-40 µm, filaments very compact with characteristic tuberculate thickening very prominent on cells of some filaments; air pore simple 10-12 µm; chloroplasts numerous in green cells of photosynthetic filaments and in storage zone; neck of archegonia 130 µm, venter 80 µm; young spores yellowish brown, mature dark brown, 81-90 µm along diameter; isopolar, reticulate, 4-6 angled, tri-radiate mark absent, 07-08 reticulations along diameter, size of one reticulation 10-14 µm, wings absent.

**Specimen examined:** ERC 3/2002 Coll & Det.: Adarsh Kumar and Shazia Kazmi.

**Location:** Village Kaithaul, ca 5 km south of the National Thermal Power Corporation, Unchahar, Raebareli district, Uttar Pradesh; 16.viii.2002.

**Distribution:** INDIA: Runnymede, Madras State, southern India; central India; Rajasthan.

**Remarks:** Very rare, found sporadically on cemented walls.

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